

ADwin-Gold

Compact Real-Time Designs

The **ADwin-Gold** is a powerful Real-Time system in a very compact and robust design. It includes many system features in a small package at a reasonable price. The **ADwin-Gold** is housed in a reliable, metal enclosure and includes: a fast, local Real-Time CPU and memory; analog and digital inputs and outputs; as well as a USB or Ethernet interface for the communication with a PC. The local CPU enables input and output response times of 1 μ s or less

The analog inputs are connected via two 8-channel MUX and two PGA to 2 \times 16-bit and 2 \times 14-bit ADCs. Signal acquisition is controlled by the ADwin's CPU, and the sampling rate is determined by the ADC conversion time, MUX settling time, and CPU workload. It is always possible to acquire two channels without any phase-shift, important for correlated signals.

The **ADwin-Gold** has 2- or 8-analog outputs. The output range is \pm 10V with a settling time of 10 μ s to FSR and 3- μ s FSR/10. Parallel updating is achieved by using one DAC per channel, with one register per DAC. It is possible to write new values into the register, and then start the conversion for all channels with a single command synchronously.



ADwin-Gold provides 32 programmable digital input and output channels at 5V-TTL/CMOS level, plus an Event input. The channels can be software selected in blocks of 8 as inputs or outputs.

Optional configurations allow additional features such as counters, quadrature encoder interfaces, RS-232/485, automotive CANbus interfaces, CANopen¹, LINbus² and SSI interfaces.

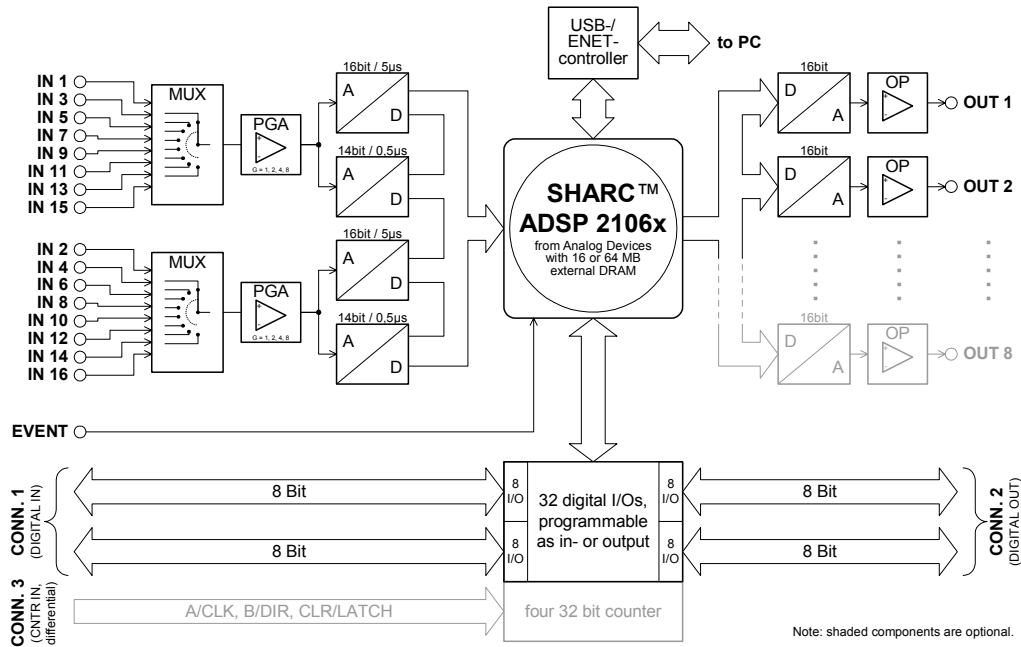
ADwin-Gold can be used in laboratories, on a DIN-rail in industrial machines, or in mobile and in-vehicle applications.

ADwin-Gold	
	ADwin-Gold System features: 2 \times 8 analog inputs, \pm 10V multiplexed to 2 \times 16-bit ADC (5 μ s) and 2 \times 14-bit ADC (0.5 μ s), 2 analog outputs 16-bit DAC (3 μ s), 16 digital inputs, 16 digital outputs D-SUB, 1 trigger input, 1 processor ADSP21062, 32-bit, 40-MHz, 256 KB internal RAM, 16 MB ext. RAM, 2m power supply cable to the desktop computer, compact metal enclosure
ADwin-Gold-ENET	ADwin-Gold with integrated Ethernet interface (10/100 MBit/s), BNC sockets for analog signals
ADwin-Gold-D-ENET	ADwin-Gold with integrated Ethernet interface (10/100 MBit/s), D-SUB sockets for analog signals
ADwin-Gold-USB	ADwin-Gold with integrated USB interface, BNC sockets for analog signals
ADwin-Gold-D-USB	ADwin-Gold with integrated USB interface, D-SUB sockets for analog signals
ADwin-Gold Options (manufacturing options only, later upgrading is not possible)	
Gold-CAN	Option of 2 \times CAN-BUS (High-Speed), 2 \times RS-232/485, 4 \times SSI decoder (only available for ADwin-Gold-D)
Gold-CAN-LS	Option of 2 \times CAN-BUS (Low-Speed), 2 \times RS-232/485, 4 \times SSI decoder (only available for ADwin-Gold-D)
Gold-CO1	Option of four 32-bit counters, which can individually operate in the following modes: period width measurement, impulse measurement or up/down counters with clock/direction or 4-edge evaluation. Input signal: 5 V differential (RS422)
Gold-DA	6 additional analog outputs, 16-bit DACs (3 μ s)
Gold-MEM64	Memory expansion from 16 MB ext. memory to 64 MB and memory expansion from 256 KB internal memory to 512 KB
Gold-Boot	Flash EPROM boot-loader for stand-alone operation without PC, only in combination with an Ethernet interface
Gold-Mount	DIN-rail installation kit
Accessories	
Gold-Pow	External power supply (12V DC) for the ADwin-Gold (10-35V)

1) via software; 2) via software and driver



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Analog Inputs		Digital I/Os		Serial Interfaces	
Input Channels	16	Input/output channel	4 × 8, in blocks of 8 software selectable	serial channels	2
ADC / Resolution	2x ADC @ 14bit 2x ADC @ 16bit	Range	5V TTL/CMOS	Type	RS-232/485
ADC conversion time	14bit: 0,5µs 16bit: 5µs	Resistance	10kΩ pull down	Mode	Software selectable
Multiplexer	2	Input current	10 (1) µA	Baud rate	2,304 Mbaud
MUX settling time	14bit: 3µs 16bit: 5µs	Output current	35 (8) mA / ch	alternative via software	LIN bus
Input range	+/- 10V	Event Input	TTL/CMOS		
Input over-voltage	+/- 35 V	Connector	25 pin D-Type		
Input resistance	330kΩ			CAN bus	
Isolation	no			CAN channels	2
Gain	1,2,4,8			max. clock	1Mbit/s
Input type	Differential	Counter ¹		type	High-speed, automotive
Typical INL	+/- 2 LSB	Number of counter	4	alternative	Low-speed, automotive
Typical DNL	+/- 1 LSB	Resolution	32-bit	alternative via software	CANopen
		Type of counter	multifunctional		
		Frequencies ²		General	
Output Channels	2 / 8 ¹	Event/pulse	20 MHz	CPU	ADSP21062 / 21060 ¹
No. of DAC	2 / 8 ¹	Period, internal ref.	40 MHz	Memory	16Mbyte / 64Mbyte ¹
Resolution	16bit	PWM, internal ref.	40 MHz	CPU RAM	256kByte / 512kByte ¹
settling time - FSR - FSR/10	10 µs 3 µs	Encoder A, B, 0	5 MHz	PC interface	USB or Ethernet
		Encoder clk/dir	20 MHz	Boot-loader	With Ethernet ¹
Output range	±10 V	SSI	1 Mbit/s max.	Dimensions	214 × 67 × 109 mm / 214 × 97 × 109 mm ⁴
Output current max.	+/- 25mA GND short-circuit proof	Range	5V TTL or diff. TTL (RS-485)	Weight	1320g / 1760g ⁴
Typical INL	±2	Resistance	10kΩ pull down	Voltage range	10 - 35V DC
Typical DNL	±1	Termination Resistance diff. TTL	120Ω ³	Current	see datasheet
				Operating temp. range	+5°C to +50°C
				Storage temp. range	-20°C to +70°C

¹) Optional configuration; ²) min. pulse length -tp- for high or low is equal to tp=1 / (2 × f_{max}), f_{max}=1/(2x tp) ³) between pos./neg. of differential input ⁴) with option ADwin-G-CAN or ADwin-G-CAN-LS; INL - Integral Non-Linearity; DNL - Differential Non-Linearity; FSR - Full Scale Range;

